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Abstract

Disclosed are oligonucleotides probes which are useful for determining a sequence of nucleotides in a target polynucleotide. In one embodiment, the probe is of the formula:  $\text{HO-(3')}(B)_j(5')\text{-OP(=O)(O-)}\text{NH-(B)}_k\text{-Bt}^*$ , wherein B is a nucleotide or an analog thereof; j is in the range of from 1 to 12; k is in the range of from 0 to 12, such that the sum of j and k is less than or equal to 12; and Bt\* is a labeled chain-terminating moiety. In a second embodiment, the probe has a formula selected from the group consisting of: (1)  $\text{OP(=O)(O-)}\text{O-(5')}(B)_s\text{RRRRR(B)}_w\text{Bt}^*$ , and (2)  $\text{OP(=O)(O-)}\text{O-(5')}(B)_s\text{RRRRR(B)}_w(3')\text{OP(=O)(O-)}\text{O}$ , wherein: B is a deoxyribonucleotide or an analog thereof; R is a ribonucleotide; s is in the range of from 1 to 8; w is in the range of from 0 to 8, such that the sum of j and k is less than or equal to 8; and Bt\* is a labeled chain-terminating moiety.